AMENDMENT TO THE CLAIMS

Please amend claim 1 as follows:

1. (Currently amended) A wafer edge exposing apparatus, comprising:

a light source device for generating source light having a wavelength of about 315 nm to about 400 nm;

an optical fiber cord for guiding the source light generated from the light source device into a light focusing device;

a lens positioned in the light focusing device to receive the source light from the optical fiber cord, the light focusing device to focus the source light to the edge of a wafer; and

a wavelength converter for directly converting the wavelength of the source light to a wavelength of about 193 nm which corresponds to the highest absorptivity of a photoacid generator of resist coated on the wafer.

2. (Original) The wafer edge exposing apparatus of claim 1, wherein the light source device includes a lamp, a parabolic or elliptical mirror, a plate, a shutter, and a filter.

3. (Original) The wafer edge exposing apparatus of claim 1, wherein the wavelength converter is made of an optically non-linear material.

4. (Original) The wafer edge exposing apparatus of claim 3, wherein the optically non-linear material is one selected from the group consisting of beta barium borate (β-BaB_2O_4), lithium triborate (LiB_3O_5), cesium lithium borate ($CsLiB_6O_{10}$), potassium titanyl phosphate ($KTiOPO_4$), potassium titanyl arsenate ($KTiOAsO_4$), potassium dihydrogen phosphate (KH_2PO_4), deuterated ammonium dihydrogen phosphate (KD_2PO_4), ammonium dihydrogen phosphate ($NH_4H_2PO_4$), deuterated ammonium dihydrogen phosphate ($ND_4H_2PO_4$), rubidium dihydrogen phosphate

(RbH_2PO_4), cesium dihydrogen arsenate (CsH_2AsO_4), deuterated cesium dihydrogen arsenate (CsH_2AsO_4), lithium niobate ($LiVbO_3$), lithium tantelate ($LiTaO_3$), lithium iodata ($LiIO_3$), potassium niobate ($KNbO_3$), barium nitrate ($Ba(NO_3)_2$), solid-state raman shifters ($KGd(WO_4)_2$), potassium pentaborate, 3-methyl-4-nitropyridine-1 oxide, L-ariginine phosphate, and combinations thereof.

5. (Original) The wafer edge exposing apparatus of claim 1, wherein the resist is ArF resist.

6. (Original) The wafer edge exposing apparatus of claim 2, wherein the lamp is a mercury arc lamp.

7. (Original) The wafer edge exposing apparatus of claim 1, wherein the source light is i-line.

8. (Original) The wafer edge exposing apparatus of claim 1, wherein the source light is one of lights having a wavelength within the ultraviolet range.

9. (Original) The wafer edge exposing apparatus of claim3, wherein the wavelength converter is made of either one of potassium titanyl phosphate ($KTiOPO_4$) and potassium dihydrogen phosphate (KH_2PO_4).

10. (Original) The wafer edge exposing apparatus of claim 2, wherein the wavelength converter is positioned in front of the lamp.

11. (Original) The wafer edge exposing apparatus of claim 2, wherein the wavelength converter is positioned between the optical fiber cord and the filter.

12. (Original) The wafer edge exposing apparatus of claim 1, wherein the wavelengths converter is positioned between the lens and the optical fiber cord.

13. (Original) The wafer edge exposing apparatus of claim 1, wherein the wavelength converter is installed at the end of the light focusing device.

14. (Original) The wafer edge exposing apparatus of claim1, wherein the wavelength converter is attachable/removable.

15. (Original) The wafer edge exposing apparatus of claim 1, wherein an anti-reflective coating film (ARC) is coated on surface of the wavelength converter.

16. (Original) The wafer edge exposing apparatus of claim15, wherein the anti-reflective coating film (ARC) is made of one selected from the group consisting of zirconia (ZrO_2), magnesia (MgO), silica (SiO_2), titania (TiO_2), and combinations thereof.

17. (Previously presented) A wafer edge exposing apparatus, comprising:

a light source device for generating a source light having a wavelength of about 315 nm to about 400 nm;

an optical fiber cord for guiding the source light;

a light focusing device for receiving the source light from the optical fiber cord and focusing the source light into a wafer; and

a wavelength converter which directly converts the wavelength of the source light to a wavelength of about 193 nm which corresponds to the highest absorptivity of a photoacid generator of resist coated on the wafer.

18. (Original) The wafer edge exposing apparatus of claim 17, wherein the wavelength converter is positioned in the light source device.

19. (Original) The wafer edge exposing apparatus of claim 18, wherein the wavelength converter is positioned in the light focusing device.

20. (Original) The wafer edge exposing apparatus of claim 17, wherein

the light source device includes a lamp, a parabolic or elliptical mirror, a plate, a shutter, and a filter.

21. (Original) The wafer edge exposing apparatus of claim 17, wherein the wavelength converter is made of an optically non-linear material.

22. (Original) The wafer edge exposing apparatus of claim 21, wherein the optically non-linear material is one selected from the group consisting of beta barium borate (β-BaB_2O_4), lithium triborate (LiB_3O_5), cesium lithium borate ($CsLiB_6O_{10}$), potassium titanyl phosphate ($KTiOPO_4$), potassium titanyl arsenate ($KTiOAsO_4$), potassium dihydrogen phosphate (KH_2PO_4), deuterated ammonium dihydrogen phosphate (KD_2PO_4), ammonium dihydrogen phosphate ($NH_4H_2PO_4$), deuterated ammonium dihydrogen phosphate ($ND_4H_2PO_4$), rubidium dihydrogen phosphate (RbH_2PO_4), cesium dihydrogen arsenate (CsH_2AsO_4), deuterated cesium dihydrogen arsenate (CsH_2AsO_4), lithium niobate ($LiVbO_3$), lithium tantelate ($LiTaO_3$), lithium iodata ($LiIO_3$), potassium niobate ($KNbO_3$), barium nitrate ($Ba(NO_3)_2$), solid-state raman shifters ($KGd(WO_4)_2$), potassium pentaborate, 3-methyl-4-nitropyridine-1 oxide, L-ariginine phosphate, and combinations thereof.

23. (Original) The wafer edge exposing apparatus of claim 17, wherein the resist coated on the wafer is ArF resist.

24. (Original) The wafer edge exposing apparatus of claim 20, wherein the lamp is a mercury arc lamp.

25. (Original) The wafer edge exposing apparatus of claim 17, wherein the source light is i-line.

26. (Original) The wafer edge exposing apparatus of claim 17, wherein the source light is one of lights having a wavelength within the ultraviolet range.

27. (Original) The wafer edge exposing apparatus of claim 17, wherein the wavelength converter is made of either one of potassium titanyl phosphate ($KTiOPO_4$) and potassium dihydrogen phosphate (KH_2PO_4).

28. (Original) The wafer edge exposing apparatus of claim 17, wherein the wavelength converter is attachable/removable.

29. (Original) The wafer edge exposing apparatus of claim 17, wherein an anti-reflective coating film (ARC) is coated on surface of the wavelength converter.

30. (Original) The wafer edge exposing apparatus of claim 29, wherein the anti-reflective coating film (ARC) is made of one selected from the group consisting of zirconia (ZrO_2), magnesia (MgO), silica (SiO_2), titania (TiO_2), and combinations thereof.

31. (Previously presented) A wafer edge exposing apparatus, comprising:

a light source device for generating source light;

an optical fiber cord for guiding the source light generated from the light source device into a light focusing device;

a lens positioned in the light focusing device to receive the source light from the optical fiber cord, the light focusing device to focus the source light to the edge of a wafer; and

a wavelength converter which directly converts a wavelength of the source light to a wavelength corresponding to the highest absorptivity of a photoacid generator of resist coated on the wafer.